DOCUMENT RESUME

ED 275 669 SP 028 255

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TITLE Teacher Education Program Evaluation: A Case Study Past and Future.
PUB DATE Nov 86
NOTE 17p.; Paper presented at the Annual Conference of the National Council of States on Inservice Education (11th, Nashville, TN, November 21-25, 1986).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Evaluation Methods; Graduate Study; Higher Education; *Preservice Teacher Education; Program Effectiveness; *Program Evaluation; *Research and Development Centers; *Teacher Education Programs
IDENTIFIERS Tennessee Technological University

ABSTRACT

Tennessee Technological University has long recognized the importance of systematic evaluation. Since 1973, the university has applied a longitudinal model for systematic data gathering and for evaluating its teacher education programs. The major goals of the university's system have been to evaluate the program objectives, provide information for those making decisions about curriculum evaluation and development, and aid in the long-range planning for the entire institution. Results derived from the project have been used to make changes in modules of study, courses, and the introduction of more educational technology. The university has now established a center, designated to study ways to improve the evaluation of programs for the preparation of teachers. The center's major activities will involve development and implementation of teacher education program evaluation models, research associated with teacher education evaluation, and dissemination of materials for use by higher education and other agencies. (CB)

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TEACHER EDUCATION PROGRAM EVALUATION
A CASE STUDY PAST AND FUTURE

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TEACHER EDUCATION PROGRAM EVALUATION: A CASE STUDY PAST AND FUTURE

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An institution of higher education must be accountable for the quality of the graduates of its teacher education programs. The need to evaluate programs for the preservice preparation of teachers and to followup the graduates has always existed, yet there has been a dearth of models and procedures for conducting the needed studies. Similar situations exist related to the evaluation of inservice programs for teachers conducted by colleges, school systems, and other agencies.

For years most institutions and agencies have conducted very limited followup studies of their graduates via the U. S. Mail. A major impetus for teacher education institutions to evaluate their teacher education programs and graduates came in 1970 with the adoption of new standards for accreditation of teacher education programs by the National Council for Accreditation of Teacher Education (NCATE). The present version of Standard 6.1 states

> The institution keeps abreast of emerging evaluation techniques and engages in systematic efforts to evaluate the quality of its graduates upon completion of their programs of study and after they enter the teaching profession. This evaluation includes evidence of their performance in relation to program objectives (NCATE, 1982, pp. 26-7).

Standard 6.2 requires an institution to evaluate its programs to provide information to identify areas that need strengthening. The Standard states

> The institution regularly evaluates its teacher education programs and uses the results of its evaluations in the modification and improvement of those programs (NCATE, 1982, p. 27).

NCATE recently approved a new design for accreditation standards that will become effective in 1988 (NCATE, 1985). This "redesign" will put even more emphasis on accountability and the need for systematic evaluation of teacher education programs.

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[1]Presented in part before the Annual Meeting of the National Council of States on Inservice Education, Nashville, TN, November, 1986. The work presented in this paper was supported in part by a grant from the Centers of Excellence program of the State of Tennessee.

In the last five years a number of organizations and individuals have cited the need for improving teacher education through evaluation. It was pointed out in Involvement in Learning: Realizing the Potential of American Higher Education (NIE, 1984) that a major condition for improving higher education is the development and implementation of improved assessment and feedback systems. The American Association of State Colleges and Universities (1985) and the National Commission of Excellence in Education (1983) indicated similar concerns. Kilgore (1981), Savage (1981), Smith (1982) and Nelli and Nutter (1985) have all expresssed a need for systematic evaluation to improve programs for the preparation of teachers.

Teacher education program evaluation is here to stay. Tennessee Technological University has long recognized that improvement of curriculum and programs is dependent upon an adequate system of evaluation. The remainder of this paper provides the reader with a brief history of some of the past work in teacher education program evaluation that has occurred at Tennessee Technological University and describes a new Center that was established at the institution to further the work.

The Past

Systematic evaluation of the graduates of the teacher education programs of Tennessee Technological University dates back to 1964 when a mail followup study of the graduates was conducted for the period 1958-1963. From 1964 until 1973, a gradual evolution took place in the evaluation of the teacher education programs of the institution. In 1973 Tennessee Technological University developed and implemented a longitudinal model for systematic data gathering and for making evaluations (both process and product) of its programs in teacher education based on the work of Sandefur (1970). Since inception the model has become an integral part of the operation of the teacher education programs at the University. The model is a useful vehicle for program planning and improvement and in meeting the accountability standards established by such organizations as the National Council for the Accreditation of Teacher Education, Southern Association of Colleges and Schools, and the National Council of State Directors of Teacher Education and Certification.

Basis for the Followup Model

The general model developed at Tennessee Technological University was based on generalizations from the research literature on effective teaching and suggested procedures and instrumentation for conducting a product evaluation of teacher education programs. The major part of the model was devoted to followup studies of the graduates of the teacher education programs of the University. The general objectives of the application of the evaluation model at the University included the following:

1. To evaluate the objectives of the teacher education programs of Tennessee Technological University through a systematic study of the graduates of the program.

2. To provide information for the faculty and administrators concerned with teacher education programs at Tennessee Technological University in making decisions pertinent to curriculum evaluation and development.

3. To aid in the process of making long-range plans for improving the total program of the University with particular emphasis on teacher education.

Operation of the Model

The basic model provides input from four sources including (1) graduates of the teacher education programs (career base line data), (2) their supervisors (principals), (3) their students, and (4) independent observers. Data have been collected over as many as five years on select groups of the graduates. Following is a brief description of the instruments and methods used for collecting data from the four basic sources.

Career base line data is collected on a continuing basis. During the first year the graduates participate in the study, they complete the California F-Scale Forms 45 and 40 (as a measure of personality), a self-rating device of the achievement of the objectives of the teacher education program, and a questionnaire designed to collect demographic information. Each graduate's transcript is analyzed and such information as standardized test scores (National Teacher Examinations, Graduate Record Examination, and American College Test) and grade point averages in major field, professional education, and psychology courses are collected. Also, information is collected from such sources as ratings of courses by students, critiques of courses and programs prepared by faculty, and reviews of the literature related to program development and improvement.

Specially trained research assistants visit in the schools of the graduates on one or more occasions each year. The purposes of these visits are to collect data from the principals and students of the graduates and to observe the graduates in the classroom. The principal of each graduate is interviewed and asked to complete two instruments designed to elicit an evaluation of the graduate's performance in the classroom and perceived level of attainment of the objectives of the teacher education program. The classroom of each graduate is visited and Ryan's Classroom Observation Record, Flanders' Interaction Analysis technique and the Tuckman Teacher Feedback Form are employed by the research assistants to collect direct information about the performance of the graduates in the classroom. Also, the students of the graduates complete an evaluation instrument. Data analyses have included the use of descriptive techniques

such as correlation to determine the relationships among the 150 variables being studied and the application of t-tests and analysis of variance to determine differences across years and groups. Also the data have been analyzed by teaching level or subject matter specialization of the graduates and through the use of factor analysis techniques. Over the 13 year history of the project over 600 graduates have participated in the project.

Specialized studies have been undertaken to supplement the information collected through application of the Tennessee Technological University Teacher Evaluation Followup Model. Studies have been undertaken in such areas as the relationship of scores on the National Teacher Examinations to classroom performance, authoritarianism and teachers' classroom behavior, the verbal interaction analysis patterns in the classroom of K-3 teachers, and changes in scores on selected instruments over time.

Results from the Application of the Model

Almost 90 reports and papers have been prepared based on the results of the 13 year study. The majority of the studies have been disseminated through the research literature and ERIC. Report 85-2 (Ayers, 1985) describes the full details of the followup evaluation Model and contains a listing of all of the reports and papers that have been prepared over the years.

It is difficult to summarize all of the results of the project that are contained in the various reports and documents that have been prepared. Following are some general comments derived from the results of the project.

Comparisons of the data, collected as a part of the project have been made with that contained in the research literature. As a whole, the graduates of the teacher education programs of the University appeared to be at a level comparable to or above the 50th percentile and were exhibiting many of the characteristics of good teachers.

The data have been used to improve the programs in teacher education. For example, modules of study have been incorporated into the methods courses completed by preservice early childhood and elementary teachers that reflect directly some of the weaknesses noted in the results of the followup studies. Major changes have been made in such instructional areas as the historical, philosophical and sociological foundations of education; educational technology courses; special education courses; materials covered in the programs in administration and supervision; and in other major program elements of the teacher education programs.

The implementation and continued operation of an extensive system of teacher evaluation at Tennessee Technological University has been of value in improving the programs for the preparation of teachers. The project has become an integral part

of the system at the University for the preparation of teachers and other school personnel. The program can be easily replicated at other institutions of higher education at reasonable costs.

It is felt that the University has demonstrated on a long term basis that systematic evaluation is essential to effective innovation in the content and curriculum of a teacher education program. Basic and applied research is being used to transform teacher education at Tennessee Technological University into programs that will meet the challenges of the 21st century. The next section of this paper describes the future of teacher education program evaluation at Tennessee Technological University.

The Future

Education is of paramount importance to improving all aspects of life. Virtually all of the states have made extensive revisions in their education systems or legislation is being considered that will ensure major revisions (SREB, 1985). Tennessee is no exception. The 93rd General Assembly, in a special session, enacted the **Comprehensive Education Reform Act of 1984 (CERA)**. As a result of this legislation, public education is being greatly enhanced. To meet the challenges of the **CERA**, higher education must change and improve programs for the preparation of teachers. One key to improving teacher education is completing evaluations of existing programs and including evaluation designs in the implementation of the new programs.

The problems in Tennessee are not unique. Throughout the United States there is an increasing demand that schools, colleges and departments of education (SCDE) revise their programs based on comprehensive evaluations. Internal pressures encourage institutions to demonstrate program effectiveness, while external mandates for meeting accreditation standards reinforce the need to engage in systematic evaluation activities. Without well developed program assessment followed by systematic implementation of the changes warranted by the examination, it is difficult to imagine how continuous increases in program effectiveness can be attained.

In 1984, there were 1,287 institutions offering programs for the preparation of teachers to enter the schools (Feistritzer, 1984). No two programs are exactly alike. However, there are common patterns in many different programs. For years, many institutions have conducted very limited followup studies of their graduates. These studies have consisted largely of asking the graduates to indicate how well they were doing as teachers and requesting them to make suggestions for improvements in the teacher preparation programs they had completed. To meet the evaluation needs of the institutions, additional work must be carried out to translate theoretical constructs into practical models and systems that can be used in improving programs for the preparation of teachers (deVoss, 1981; Kilgore, 1981; Savage, 1981).

Center for Teacher Education Evaluation

In 1984 as a part of CERA the Tennessee Higher Education Commission (THEC) was given the authority to establish Centers of Excellence on campuses of public institutions of higher education. The purposes of these Centers were to improve the economic, cultural and social opportunities available to the citizens of the State of Tennessee. Tennessee Technological University developed a proposal, that was approved for funding by the THEC for the establishment of a Center for Teacher Education Evaluation. The primary mission of the Center is to explore ways to improve teacher education through program evaluation. The following statement by Hord, Savage and Bethel (1982) expresses the need for the establishment of the Center for Teacher Education Evaluation

> What procedures can be used for assessing the effectiveness of teacher preparation programs and for obtaining data on which to base program improvement? One teacher education task force studying evaluation and program development assessed the state of the art of evaluation in teacher education as "one of conflicting research results, lack of clarity and agreement about evaluation designs, and a fragmentation of evaluation focus" (Strathe, 1982). Such evaluation of teacher preparation programs has been primarily focused on follow-up studies of graduates. The studies have examined various information about graduates including graduates' perceptions about and satisfaction with their programs, and ratings of the graduates' performance by supervising teachers, principals and others. Despite the pressure exerted by internal needs for evaluation and external mandates from the state or national level for accreditation, the state of the art has advanced little. Cooper (1980) observes that "very little of what is known about evaluation models and assessment procedures have been applied to teacher education programs. The methodologies ... are not well developed."

Efforts have been made in the past by a number of individuals and groups to develop models for use in teacher education evaluation. For example the theoretical models developed by Borich, Smith, and Stufflebeam (Hord, Savage & Bethel, 1982) have promise for use in solving the problems of teacher education evaluation. The followup evaluation model advanced by Sandefur (1970) still has much to offer. However, there is a need for further work to bring these models to a state where they can be applied at institutions in a comprehensive meaningful manner. Also, these models do not fully address the problems associated with evaluation of graduate level programs for the preparation of teachers nor programs for the preparation of school service personnel (e.g., principals and counselors).

Operation of the Center

The Center for Teacher Education Evaluation is a five year on-going project that began operation July 1, 1986 and will continue a minimum of five years. The annual budget of the Center derived from state funding increases from $250,000 in 1986-87 to over $310,000 in 1990-91. In addition, the Center is expected to raise a minimum of one dollar for each two dollars derived from state appropriations to further support the operation of the Center.

The objectives of the Center for Teacher Education Evaluation are unified under three broad goals that serve to guide the operation of the various projects that are being undertaken. The remainder of this section will focus on the major Center goals.

GOAL A. To contribute to the continual improvement of teacher education programs through the systematic development and testing of teacher education evaluation models.

The major focus of the Center is on the development and implementation of new and improved models for the evaluation of teacher education programs. The current Tennessee Technological University Teacher Evaluation Model has been confined largely to followup studies of the graduates of the teacher education programs. It is proposed that the followup model will be expanded to include at least five additional areas of study. It has been demonstrated in a number of studies summarized by Medley, Coker and Soar (1984) and Zimpher and Ashburn (1985) that followup evaluation is the most pertinent area of study in the evaluation and improvement of programs for the preparation of teachers. Therefore, a major focus of the Model will still be on followup evaluation. Other types of models will be examined in future years of the project.

The proposed revised model will examine variables under six broad categories. Following are the six broad categories andand a suggested list of variables that may be examined as a part of the development and field testing a new model.

1. Teacher Candidates- Formative experiences (e.g. SES, sex, age, standardized test scores)
   Intelligence
   Motivation
   Personality

2. Education Unit- Organizational conditions (e.g., physical facilities, financial,political)
   Regulatory policies (e.g. standards, accreditation)
   Social Climate

3.	Program-	Goals Faculty Knowledge base Courses Formative evaluation
4.	Outcomes-	Knowledge of teacher candidates Placement Records Standardized measures (e.g., National Teacher Examinations) Length of Career
5.	Followup-	Teaching processes Classroom context School Context Success on the Tennessee Career Ladder or through a program of another state
6.	Pupil Outcomes-	Cognitive Affective Psychomotor

Various specialized studies will be undertaken in each of the broad areas noted above. Appropriate instrumentation and techniques will be derived and investigated. For example, the evaluation of pupils of the graduates is a controversial subject in the research literature. It has been pointed out by a number of researchers including Nelli and Nutter (1985) that

> evaluation and research does not permit pupil outcomes as a practical basis for evaluating programs because we cannot yet tie pupil outcomes to specific program contents.

On the other hand Millman (1981) has indicated that many individuals see student achievement data as an excellent source of information about teacher effectiveness. Shavelson, Webb, and Burstein (1986), in a recent comprehensive review of the literature on the measurement of teaching, further defended the use of pupil gain scores as a measure of teacher effectiveness. The use of pupil achievement test scores will require careful and thoughtful analyses in order to achieve meaningful results.

As an initial approach to the implementation of the Model proposed above, the work of Stufflebeam (1981 & 1982) will serve as a basis for the overall guidance of the implementation of the project. Stufflebeam's basic plan includes the evaluation of the Context, Input, Process, and Product of a teacher education program (CIPP Model). Other models and processes for implementation will be developed and field tested.

Implementation of the model will require the use of a variety of research designs and methods. Sandefur (1982) and Biddle and Anderson (1986) summarized a variety of techniques

that could be used in the evaluation of teacher education programs. Selected designs and methods will be fully investigated as a part of the operation of the Center.

Specialized studies of the various components of the model proposed above are being undertaken. For example a study of the concurrent and predictive validity of the Pre-Professional Skills Test is underway. An examination is being made of the use of the Classroom Observations Keyed for Effectiveness Research (Coker, 1978, Coker & Coker, 1982a,b; Coker, Lorentz & Medley, 1976) as a primary observation instrument in followup studies.

There are a lack of models and techniques for the evaluation of programs for the preparation of school service personnel. For example, work is beginning on the development of a model that can be used to evaluate programs for the preparation of school librarians. Studies are underway across the country on the role and scope of the principalship. To meet this end, the Center will begin work in the next year on the development and field testing of models for the preparation of school administrative personnel.

GOAL B. To further research in the area of teacher education program evaluation.

An integral part of the activities of the Center includes conducting appropriate research and development work that will support and supplement the goal related to model development. It is difficult in some cases to separate fully research work from the development of models. Following is a description of several of the research projects that are being undertaken to support the major mission of the development and implementation of teacher education program evaluation models.

Basic research on the development of valid and reliable measures to evaluate such elements as undergraduate achievement of preservice teachers, the formative elements of courses, and the administrative structure of SCDE is underway. The staff is beginning extensive development, field testing and refinement of a number of instruments that will be used as a part of the models and research work that will be accomplished by the Center. The work of Banghart (1969) and Cook (1966) is being used in guiding the work.

In order to assess the role of the dean or department chair in preparing teachers, a study has been initiated to determine who are the most effective and why. A study will begin in the spring of 1987 of a group of teachers who are effective in the mainstreaming of special children in the regular classroom. In turn the data collected will be correlated with the type of preparation the individuals had completed in preservice and inservice education programs.

Over the past 13 years a number of institutions have initiated studies of their teacher education programs utilizing

materials and instrumentation related to the Tennessee Technological University Teacher Evaluation Followup Model. Each institution or agency that has requested information from the University or is known to have access to the basic model is being contacted and asked to provide copies of all reports and other documents that have been prepared related to the application of the followup evaluation model. The accumulated reports and information will be analyzed using meta analysis techniques (Smith, 1981a,b).

Most systems that are used to collect direct observation data of a teacher require an individual to record information by hand in the classroom or by observing video tapes. This process is a tedious, time consuming task, that sometimes gives poor results. Also, the observation data must be then analyzed by hand or converted for analyses by use of a computer. The Tandy Educational Grants Program has donated two microcomputers and supporting software, to the Center to be used in the development and refinement of a system for the collection of observation data directly in the classroom. The process will be more efficient and accurate and data analyses can be accomplished quickly. This will allow for more efficient operation of the observation aspects of a model and will provide feedback more efficiently to the observed teacher and to the faculty of a teacher preparation program. It is anticipated that the project will also be able to develop other software that will be useful to the models being developed. Other microcomputer systems are being developed to insure more efficient and reliable reporting.

GOAL C. To establish improved delivery systems for information about teacher education program evaluation.

The third goal of the Center may be the most important. To achieve the mandates of the **CERA** many institutions of higher education in Tennessee may be in need of assistance. The Center can provide the needed help. As a part of the activities of dissemination, a detailed plan is being developed that will be designed to aid institutions of higher education in improving their programs. The major focus during the first year will be on Tennessee; however, the Center will be global. The Center can provide technical assistance to public school systems and other agencies. For example, the work of the Center can be utilized in the evaluation of inservice programs for teachers and other professionals. In turn this can lead to improved programs for inservice education.

Beginning in 1987-88, and for each year thereafter, a conference on teacher education program evaluation will be conducted. Representatives from higher education, governing bodies, the public schools, and other agencies will be invited to attend and to also share their work. It is anticipated that these conferences may be held jointly with other organizations that have similar interests. The proceedings of each meeting will be made available for dissemination. Reports, papers and other documents will be disseminated in a systematic manner through the

usual means of communication among professional educators, i.e., ERIC, the journal literature and occasional papers.

The primary mission of the Center is related to research and development. However, it is felt that a natural spinoff from the Center activities will be the development of a program for the preparation of individuals to assume leadership roles in the schools in the area of evaluation, research and development. The employment prospects for individuals with specialized training in these areas is increasing. The faculty who will be working with the Center will form a logical nucleus for such a program. Also, many of the courses that will be needed for a graduate program at the M.A. or Ed.S. levels are already in place at Tennessee Technological University. Therefore, during the third or fourth year of the project, it is anticipated, that the Department of School Services Personnel and Psychology will develop and implement an area specialty program in evaluation and research within their graduate programs for the preparation of educational psychologists. The program will be portable and other institutions will be able to replicate the basic design.

Summary

Tennessee Technological University has long recognized the importance of systematic evaluation. In 1973, the University developed and implemented a longitudinal model for systematic data gathering and for making evaluations (both process and product) of its programs in teacher education. The model has been a useful vehicle in program planning and improvement and in meeting the accountablity standards established by such organizations as the National Council for the Accreditation of Teacher Education (NCATE, 1985).

The main goals of the system were to evaluate the objectives of the teacher education programs, provide information to the faculty and administrators making decisions on curriculum evaluation and development, and aid in long-range planning for the entire institution. The system has proven to be a useful tool to the University and has been widely recognized as an exemplary project.

During the past 13 years, a variety of data have been collected on 150 variables from over 600 graduates of the bachelor's and master's level programs of the University. This information has proven useful in program developed and modifying the existing programs. As a whole the graduates of the teacher education programs appeared to be at a level comparable to or above the 50th percentile and were exhibiting many of the characteristics of good teachers. Results derived from the project have resulted in such changes in the teacher preparation programs as new modules of study in the elementary and early childhood education programs, major changes in the courses in the historical and sociological foundations of education, and the introduction of more educational technology into the undergraduate teacher preparation curriculum.

Based on the work of the past, the future of teacher education program evaluation is bright. It was recognized that there was a need for a major Center designed to study ways to improve the evaluation of programs for the preparation of teachers. A center devoted to the study of teacher education program evaluation and allied areas was established at Tennessee Technological University in the summer of 1986 through the Centers of Excellence program administered by the THEC. The five year $2,500,000 project is designed to aid in the process of improving teacher education, not only in Tennessee but throughout the United States.

The major activities of the Center are divided among three major goals that include development and implementation of teacher education program evaluation models, research associated with teacher education evaluation and dissemination of materials for use by higher education and other agencies. The major emphases under the first goal are the development and refinement of a model(s) for use by higher education in meeting the mandates of the **CERA** and the evaluation requirements of such agencies as the National Council for the Accreditation of Teacher Education. The second goal provides latitude in conducting basic research that can be used in support of the work on the development of models. The third goal provides a means for dissemination of the results of the research and development work. Specialized objectives guide each of the major goals. Projects are being undertaken that will meet the objectives of the Center.

The resources of the Center are available to, not only Tennessee institutions, but colleges and universities, public and private schools, and other agencies throughout the United States. Additional information about the Center, the services that can be provided, and publications can be obtained from Director, Center for Teacher Education Evaluation, Tennessee Technological University, Cookeville, TN 38505.

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